

On the Spectrum of Comet b 1883 (Pons-Brooks), observed at the Royal Observatory, Greenwich.

(Communicated by the Astronomer Royal.)

The spectrum of this comet has been examined by Mr. Maunder on the nights of Nov. 27 and Dec. 6 with the "half-prism" spectroscope mounted on the Great Equatorial. The spectroscope was used in the "reversed" position, as in the observations of prominences, so as to give great purity of spectrum. The dispersion from A to H in this position is 5° , and the magnifying power employed was 14.

On Nov. 27 the observations were much interrupted by the passage of light cloud, and no measures were obtained. The spectrum consisted of the three usual cometary bands, with edges bright and sharp towards the red, and fading gradually away towards the blue. No continuous spectrum could be certainly made out, though the band in the yellow, which was very faint, could be traced nearly up to the sharp edge of the band in the green, and that again could be traced very nearly up to the sharp edge of the band in the blue. The bands in the red and violet were not looked for. The band in the green was fairly bright, and the edge towards the red sharp and well defined. The band in the blue was much fainter, and its less refrangible edge not so well defined as that of the band in the green. The band in the yellow was fainter even than that in the blue.

As seen in the finder, the comet appeared nearly circular, about $4'$ or $5'$ in diameter; it showed a central condensation of stellar appearance, and a faint prolongation of the comet at about 20° position-angle seemed to indicate the commencement of a tail.

On Dec. 6 the comet was decidedly brighter than on Nov. 27, but its appearance as seen in the finder had not undergone any material change. The spectrum, however, seemed somewhat different. There was a very distinct continuous spectrum about $1''$ in breadth, and a fainter continuous spectrum was suspected to extend for $25''$ or $30''$ on both sides of this bright central spectrum. The band in the green was traced for a total length of $4'$, and probably extended further still. The band in the yellow was traced for a total length of about $2'$ or $2' 10''$; the band in the blue for about $70''$ or $80''$. The band in the yellow was now very much brighter than that in the blue; the intensities of the three bands being roughly estimated as follows:—Yellow band 5. Green band 10. Blue band 1. The red and violet bands were not looked for. The less refrangible edges of all three bands were very sharp and well defined.

The following measures were obtained of the sharp edge of the green band of the comet spectrum as compared with the

green band of the spectrum given by a vacuum tube containing alcohol.

Greenwich Sidereal Time.	Comet-band—Alcohol band		Inferred Wave-length of Comet band.
	Micrometer Reading	Wave-length tenth-metres	
h m	r		
0 30	1.885	34.5	5162.5
0 45	2.269	41.5	5155.5
1 5	2.176	39.8	5157.2
1 20	1.980	36.2	5160.8
1 40	1.708	31.3	5165.7
Mean			5160.3

The green band of the comet spectrum was obviously not coincident with the green band of the alcohol spectrum, but far to the blue of it. There was, however, a bright line in the spectrum from the alcohol vacuum tube coincident with the green band of the Bunsen-flame, and with this the comet-band was very nearly coincident. It seemed, however, a little to the blue of it. The width of the slit during the above measures was 15.8 tenth-metres.

Thalén's wave-length for the less refrangible edge of the green band in the spectrum of the alcohol was assumed throughout: viz. 5197.0 tenth-metres.

Royal Observatory, Greenwich:
1883, Dec. 13.

Rotation Period of Jupiter. By W. F. Denning.

Observations of the last few years have proved that one rotation period will not satisfy the motion of different markings on the surface of *Jupiter*. Nor will one period satisfy the same marking for a lengthened interval, as the individual spots have in certain prominent cases shown a slackening motion, the amount of which increases with the time.

At Bristol since 1880, September 27, the great red spot has been observed as it crossed the planet's central meridian on 152 nights. The equatorial white spot has been similarly recorded on 150 nights. Other markings of apparently less permanent character have been carefully watched for shorter intervals. I have partly derived the longitudes of the red and white spots and otherwise reduced the observations by the aid of Mr. Marth's valuable Ephemerides published in the annual volumes of the *Monthly Notices*.